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Professional Education in Public Health

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PROFESSIONAL EDUCATION in public health prepares several different groups of workers for public service in health activities. Among these workers are persons who have been trained in medicine, dentistry, nursing, engineering, social work, and the natural and social sciences. Professional education in public health supplements the previous professional, scientific, and social science education of students by providing the specialized training required for their public health activities.

Development of Public Health Measures

Although throughout recorded history communities have taken measures to protect the health of their citizens, developments in the last century have laid the foundation for most current concepts of public health needs and public health techniques. In this period, public health practice has expanded with the increase in scientific knowledge, with changes in health problems, and with the evolution of social philosophy.

The first major advance toward the present public health movement occurred in the mid-1800's with the discovery of the relationship between environment and health. Chadwick's report on the *Sanitary Conditions of the Laboring Population of Great Britain* in 1842 described the association of ill health and unfavorable environmental conditions. Studies in England and elsewhere and improved methods in environmental sanitation resulted in practical control measures for many of the infectious diseases even before the discovery of their cause. Environmental sanitation thus became the first component of modern public health practice, a new technology calling for engineers, architects, and chemists.

The identification of specific bacteria as the causative agents of a number of infectious diseases by Pasteur, Koch, and their pupils, and Metchnikov's clarification of some of the mechanisms of the body's defense against disease lent impetus to the public health movement. As public health practice expanded to encompass this new knowledge, the skills of physicians and persons trained in bacteriology, epidemiology, and related disciplines were needed and used.

As the acute communicable diseases have been brought under control, life expectancy has increased, the age distribution of the population has shifted, and the important causes of mortality have changed. To keep pace with these changes, public health practice has also changed. The growing recognition of the interdependence of individual and community welfare stimulated this change. This phase of development required further additions to the corps of technical public health personnel. Nurses, social

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scientists, social workers, and administrators became essential.

Public health activities, in short, represent social organization designed to promote the health of the community. One of the most widely accepted definitions of public health calls it " . . . the science and art of preventing disease, prolonging life, and promoting physical and mental health and efficiency through organized community efforts." [1] A definition of this scope must include many different kinds of services which may be summarized as follows: Recording and analysis of health data; health education and information; supervision and regulation; provision of direct environmental services; administration of personal health services; operation of health facilities; and coordination of community activities and resources.

Organization of Public Health Services

To provide the wide variety of services that are administered by a large number of agencies, personnel representing many fields of specialization are required. Physicians, nurses, sanitarians, and engineers form the core of public health personnel, but many other special groups also participate, such as dentists, health educators, laboratory workers, nutritionists, social workers, statisticians, and veterinarians.

Local, State, Federal, and international governmental agencies and voluntary organizations provide a wide range of public health services. The number of full-time local health units and the scope of their activities have increased substantially since the first such unit was organized. In general, the local governmental health agencies provide most of the direct services to the people.

All State Governments consider public health to be one of their major functions, and, although many units of State Government participate in health activities, the health department is the agency primarily responsible. The present trend is for the State public health agency to provide consultation and advisory services to the local agencies and not direct services to the people.

Although several agencies of the Federal Government are concerned with specialized aspects of public health, most of the Federal public health responsibilities for the civilian population are centered in the Federal Security Agency. Several of the constituent units of this agency have important health functions, but the Children's Bureau and the Public Health Service are most directly concerned. These agencies administer grants-in-aid programs to the States and provide consultation to them. The Public Health Service also conducts and supports research and training in the medical and related sciences, and in public health methods and administration.

The World Health Organization, a specialized agency of the United Nations, is the directing and coordinating authority in international aspects of health. The Organization provides technical and advisory services in many phases of public health, such as epidemiology, statistics, standardization of drugs, sanitation, maternal and child health, and communicable disease control. The provision of fellowships to public health workers is another major function of this organization.

In addition to these official governmental agencies many unofficial or voluntary organizations contribute a wide range of health services. The voluntary health agencies typically are designed to combat particular diseases or disabilities that affect large numbers of people, but some have widened their scope to include broad educational and direct-service programs. These agencies vary greatly in size and organization. Some, such as the American Cancer Society, the National Foundation for Infantile Paralysis, and the National Tuberculosis Association, are large national organizations with many paid employees. Other voluntary organizations are small and local, depending largely on unpaid personnel to carry out their programs.

The total number of persons employed in providing public health services is difficult to determine. Local full-time health units employ some 33,000 full-time workers,[2] and State health departments some 15,000 full-time, noninstitutional personnel.[3] The number of public health people employed by the Federal or International agencies is not available. Voluntary organizations employ some 20,000 paid workers who are augmented by perhaps as many as a million unpaid voluntary workers.[4]

[1] C.-E. A. Winslow, The Evolution of Public Health and Its Objectives. *Public Health in the World Today*, edited by James Stevens Simmons. Cambridge, Harvard University Press, 1949.

[2] Clifford H. Greve and Josephine R. Campbell, *Public Health Personnel, Facilities, and Services in Local Areas.* Public Health Service Publication, No. 232. Washington, D. C., U. S. Government Printing Office, May 1952. 75 p.

[3] Joseph W. Mountin, Evelyn Flook, and Edward E. Minty, *Distribution of Health Services in the Structure of State Government, 1950. Part one.* Public Health Service Publication, No. 184. Washington, D. C., U. S. Government Printing Office, 1952. 64 p.

[4] Selskar M. Gunn and Philip S. Platt, *Voluntary Health Agencies.* New York, The Ronald Press Co., 1945. 364 p.

Preliminary data from a study being made by the Division of Public Health Methods of the Public Health Service show, in table 1, the positions held by full-time public health physicians.

Table 1.—Positions held by full-time public health physicians, 1951

Position	Number of physicians
Total	3,347
Local health departments	1,645
State health departments	581
Other local or State official agencies	56
Federal health agencies [1]	749
Voluntary agencies, foundations	43
Teaching	168
Hospitals	40
All other positions	65

[1] Physicians engaged in clinical service in Federal hospitals are not included in this count.

Professional Associations and Publications

Each of the professions represented in public health work has its own professional association and journal that may cover public health as well as the special aspects of its field of practice. These professional associations have played a significant part in accelerating the evolution of public health, in developing a close community of interest among the participating professions, and in providing forums for the exchange of experiences.

In addition, all the public health professions are represented in the major professional organization of public health workers as such—the American Public Health Association which was organized in 1872. In 1952, it had approximately 13,000 members distributed among 13 sections devoted to various phases of public health work. The association publishes the monthly *American Journal of Public Health*, holds annual meetings, and conducts many investigations and field studies.

Four standing committees (Administrative Practice, Eligibility, Professional Education, Research and Standards) with their subcommittees and special section-committees provide the framework and impetus for the investigations and studies. Of most direct importance to the education of health workers is the Committee on Professional Education. It recommends educational qualifications for the various types of public health workers; sponsors the Professional Examination Service, which develops written tests used by State merit systems in selecting public health personnel; and carries on activities for accrediting public health courses.

The *American Journal of Public Health* publishes many of the papers presented at the association's annual meetings, as well as committee reports and policy statements of the association. Another journal that covers all major aspects of public health administration, practice, and research is *Public Health Reports*, published by the United States Public Health Service. It had a record of 66 years of continuous publication as a weekly before its conversion to a monthly journal in January 1952.

Schools of Public Health

Early in their development, public health agencies were staffed by persons who developed their knowledge and skills in this field through practical experience and apprenticeship. The categories of personnel participating in community health programs were limited, and their responsibilities and qualifications were poorly defined. As the numbers of persons employed in community health services increased and as their professional responsibilities became more clearly fixed, opportunities for academic professional training gradually emerged. The professional education in public health as such is today offered as graduate work, provided chiefly by 10 schools in the United States and one in Canada that give accredited degree courses.

Most of the institutions now known as schools of public health evolved from preexisting courses in public health, preventive medicine, sanitation, and related subjects, and existed first as departments of medical schools or other university units. Because of this evolutionary process it is not easy to fix a date that marks the first school of public health, but apparently no facilities existed in the United States for specialized training or education in this field before 1910.[5]

During the next 25 years, a few schools of public health and several departments of public health in university medical or graduate schools were organized—in most cases leading to public health degrees or certificates. These courses varied greatly in length, admission requirements, curriculums, facilities, and number and qualification of faculty members.

Some schools are organized as independent units

[5] John J. Hanlon, *Principles of Public Health Administration*. St. Louis, The C. V. Mosby Co., 1950. 506 p.

Table 2.—Institutions with public health courses accredited for the academic year 1952–53

Institution	Date of organization [2]	Degrees for which accredited [1]		
		Master of public health (M. P. H.)	Doctor of public health (Dr. P. H.)	Master's degree in public health education other than the M.P.H
University of California, School of Public Health, Berkeley 4, Calif	1944	X	X	
Columbia University, School of Public Health, New York 32, N. Y	1921	X	X	X
Harvard University, School of Public Health, Boston 15, Mass	1921	X	X	X
Johns Hopkins University, School of Hygiene and Public Health, Baltimore 5, Md	1916	X	X	
University of Michigan, School of Public Health, Ann Arbor, Mich	1941	X	X	
University of Minnesota, School of Public Health, Minneapolis 14, Minn	1944	X		X
University of North Carolina, School of Public Health, Chapel Hill, N. C	1940	X	X	X
University of Pittsburgh, Graduate School of Public Health, Pittsburgh 13, Pa	1948	X	X	
Tulane University, Department of Public Health, New Orleans 13, La	1947	X	X	
Yale University, Department of Public Health, New Haven, Conn	1915	X	X	X

[1] *American Journal of Public Health*, vol. 42, No. 7, July 1952, p. 885–886.
[2] Date of establishment of present school organization as given in the catalogs of the schools.

of the university, some as units within organized divisions of medical sciences, and still others as medical school departments. The place of public health instruction within the university structure affects to some extent the interchange of instruction between the school of public health and other units of the university.

Four of the universities in the United States with which the schools of public health are affiliated are State supported, and six are privately controlled institutions. As is characteristic of higher education institutions generally, the privately controlled schools are concentrated in the eastern part of the country.

The schools are organized into an association known as The Association of Schools of Public Health formed in 1941.

Accreditation

The Social Security Act of 1935 provided funds to the States for training health personnel and so increased the need for training facilities. Many schools and universities proposed establishing additional courses, but governmental agencies responsible for approving the use of training funds had no way of discriminating between good and poor schools.

Consequently, in 1945 the Association of Schools of Public Health and the United States Public Health Service decided that a plan for accreditation of public health courses was needed. The American Public Health Association agreed to undertake the task. The review of facilities and programs is made by the Committee on Professional Education with the final action being taken by the Executive Board of the American Public Health Association.

In 1947, the Executive Board of the American Public Health Association released the first list of institutions accredited for the master of public health and doctor of public health degrees. Table 2 shows the schools in the United States that had accredited programs for the academic year 1952–53. In Canada the School of Hygiene of the University of Toronto has an accredited program offering a diploma in public health, equivalent to the master of public health degree.

Criteria for accreditation were first published in 1946 and were revised slightly in 1948.[6] Accreditation is given separately for the master of public health and the doctor of public health degrees. Schools accredited for the master of public health degree may also be accredited for other masters' degrees in public health education.

These criteria cover general university status, essential faculty, housing and other facilities, availability of health units for demonstration, admission requirements for students, general course requirements, adequacy of curriculum, and opportunities for advanced research and specialization. Only general standards concerning curriculum content

[6] American Public Health Association, Committee on Professional Education, Revised Criteria for Accreditation of Public Health Courses. *American Journal of Public Health*, vol. 39, No. 2, February 1949, p. 230–232.

were established, assuring the schools wide latitude for experimentation in organizing instruction.

Graduate Curriculums

The three major functions characteristic of academic institutions—education, research, and community service—are represented in varying proportions in the activities of the various departments of the schools of public health. Although the three areas of activity have certain distinguishing characteristics, these functions are basically interrelated. Research, by broadening and deepening knowledge in the biological and applied sciences related to public health, enriches the content of teaching and stimulates a spirit of investigation and objective observation among both faculty and students. Community service, like the clinical activities of medical education, provides essential teaching material and training ground for students.

The goal of teaching in schools of public health is twofold. The first goal is to give all students an understanding of the health aspects of the interaction of man and his physical, biological, and social environment and broad knowledge of the application of these principles in community health programs. The second goal is to train specialists in various types of community health service. In approaching the second goal there is wide variation in emphasis among the several schools, depending upon a number of factors, such as the location of the school, the needs of the surrounding areas, and the special interests of the faculty. Thus one school has a highly developed department of tropical medicine; another puts special stress on industrial hygiene; and others emphasize instruction and research in epidemiology. Five schools provide training in hospital administration. To some extent, therefore, students select a school on the basis of their major interests and the facilities for specialized instruction.

Because of the broad scope of public health activities and the variety of professional personnel who receive instruction at schools of public health, the schools find it necessary to offer a wide range of courses. These courses cover some 20 subjects in both the basic public health sciences and the application of public health principles and techniques in public health practice. Basic public health sciences include such subjects as biostatistics, epidemiology, microbiology, nutrition and biochemistry, physiology, and parasitology. The applied subjects include public health administration, environmental sanitation, hospital administration, medical economics, public health education, public health nursing, public health dentistry, industrial hygiene, maternal and child health, mental hygiene, cancer, and venereal disease control.

Students enrolled in the schools of public health may also take some courses given by other units of the university. For example, courses in education, sociology, and some of the clinical branches of medicine are often open to students of public health, permitting supplementation in fields that are not included in the regular curriculum of the schools of public health.

Trends in professional education in public health reflect the trends in public health practice. In recent years increasing emphasis has been laid on mental health, socioeconomic factors, adult health, chronic disease, maternal and child health, and public health administration. Less emphasis than formerly is now being placed on instruction in communicable disease control.

Graduate Degrees

The schools of public health offer several different graduate degrees in addition to the master of public health and doctor of public health degrees (table 3). At some of the schools that grant the master of science degree there is little difference between the courses of study taken by candidates for this degree

Table 3.—Graduate degrees offered in schools of public health in the United States

Degree	School
Master of public health	All 10 schools.
Master of science	Columbia, Minnesota, Pittsburgh, Yale.
Master of science in public health	North Carolina.
Master of hospital administration	Minnesota.
Master of science in hygiene	Harvard, Johns Hopkins.
Master of science in sanitary engineering.	North Carolina.
Master of public health in tropical medicine.	Tulane.
Master of industrial hygiene	Harvard.
Doctor of public health	California, Columbia, Harvard, Johns Hopkins, Michigan, North Carolina, Pittsburgh, Tulane, Yale.
Doctor of science in hygiene	Harvard, Johns Hopkins.
Doctor of philosophy	North Carolina, Pittsburgh, Yale.

and those taken by candidates for the master of public health degree. In other schools, the programs for the two degrees differ—the master of science being used primarily for work in the public health sciences as distinct from the applied courses.

The minimum entrance requirements for a candidate for the master of public health degree specify that the student must either hold the degree of doctor of medicine, doctor of dental surgery, doctor of veterinary medicine, or an equivalent, from an acceptable institution or hold a bachelor's degree with adequate training in mathematics, and the natural sciences, including chemistry and biology, and with additional professional experience which qualifies him for education in public health.

In all schools candidates for the master of public health degree are required to take basic courses in biostatistics, epidemiology, public health administration, and environmental sanitation. Beyond these minimum requirements, individual schools vary in their requirements and in the amount of time which students have left for elective subjects.

The doctor of public health is generally limited to holders of the doctor of medicine degree, although in exceptional cases other persons may receive this degree. It requires prior completion of basic courses equivalent to those required for the master of public health and the completion of an additional year of graduate academic work involving specialization in a particular area of public health. According to the standards set forth in the accreditation criteria, the student must "indicate capacity to make substantial contributions to the advancement of the science and art of public health by submitting a dissertation in his field." The doctor of science and doctor of philosophy degrees are awarded for advanced, specialized graduate work in the public health sciences.

Methods of Graduate Instruction

Changes are taking place in the methods of teaching. The current trend is away from formal lectures for large classes and toward informal teaching in small groups. This kind of teaching helps students with different professional backgrounds to learn to work together as a team. Because of the small numbers of graduate students the schools can arrange courses on almost an individual student basis and assure personal contact between the students and members of the faculty. Although this method of teaching is costly, most public health educators think it is essential if professional workers in public health are to be prepared to assume a broad range of responsibility.

The importance of supervised field training as part of the education of the professional worker in public health is generally recognized. Field training for the student of public health is equivalent to the clinical clerkship and internship for the medical students. It provides the student with an opportunity to apply the principles learned in the formal academic part of his training.

Field experience may be required before a student enrolls at a school of public health, during the academic year, or after completion of the academic year. Requirements are sufficiently flexible at all schools to allow the adaptation of field training arrangements to the student's background or field of special interest. Field training opportunities developed by the schools include observation, field investigation, supervised field experience, and residency training in which the student has an increasing range of responsibility in carrying out the functions of a health agency.

Specialty Training in Public Health

The recently organized American Board of Preventive Medicine, which grants specialty status in this field to physicians who meet its requirements, is influencing the expansion and standardization of postgraduate field training. The board requires a period of residency training in an approved public health agency as one of the requisites for specialty qualification. The board, the American Public Health Association, and the Council on Medical Education and Hospitals of the American Medical Association have jointly accredited certain field training areas for this purpose. Twelve States, including nearly 80 local areas, are now approved for a 1-year residency in public health which will be recognized for certification of public health specialists.[7]

Undergraduate Curriculums and Degrees

Four of the schools of public health (California, Michigan, Minnesota, North Carolina), in addition to graduate work, offer undergraduate programs leading to a bachelor of science degree. The majority of these undergraduate students are nurses working for a bachelor of science degree in public health nursing. The programs for registered nurses

[7] American Medical Association, The Council on Medical Education and Hospitals, Approved Residencies in Preventive Medicine, *Journal American Medical Association*, vol. 150, No. 4, Sept. 27, 1952, p. 341.

are planned to provide basic preparation in public health nursing that will fit them for positions in official and nonofficial agencies.

Two of the four schools (California, Michigan) offer undergraduate programs in such subjects as sanitation, laboratory techniques, and administration. Some of these undergraduate programs at California have been going on for a number of years and have proved to be a valuable training resource. Other programs are of recent origin and are still somewhat experimental in character. This is particularly true of the undergraduate courses in administration which train students to assist health officers in the nonmedical phases of public health administration or to serve as assistants to hospital administrators.

Schools Other Than Schools of Public Health

For the academic year 1950–51, a total of 44 colleges and universities offered graduate public health engineering or sanitary engineering degrees, and 41 institutions offered programs of study in public health nursing approved by the National Nursing Accrediting Service. Eight schools in addition to the accredited schools of public health offered graduate courses in public health.[8] At most of these schools, only one phase of training is offered—courses for health educators; for sanitarians; for nurses interested in teaching, supervision, or administration; or for medical technologists. Most of the courses lead to a master's degree.

Students in Graduate Courses

For the academic year 1952–53, some 900 graduate students were enrolled in the 10 schools in the United States that have accredited programs. The Committee on Professional Education of the American Public Health Association publishes an annual report on the numbers of students enrolled in graduate courses in public health and public health engineering and the number of graduate degrees awarded (table 4). The figures in the column "public health" are not limited to students in schools of public health in the United States but include students in other graduate public health courses and in the Canadian schools of public health. Enrollment data for the schools of public health, as such, have not been reported.

[8] American Public Health Association, Committee on Professional Education, Public Health Degrees and Certificates Granted in the United States and Canada, During the Academic Year, 1950–51. *American Journal of Public Health*, vol. 42, No. 1, Jan. 1952, p. 69–73.

The problem of determining the enrollment in schools of public health is not simple. Some of the difficulties are implicit in the administrative place of the schools in the university structure. For example, some students may take most of their courses in the school of public health and yet their degrees may be granted by some other school of the university. In such instances, both schools may claim the students, or for some purposes they may be included in enrollment figures of the school of public health and for some purposes, not.

Table 4.—Enrollment of graduate students, 1942–52

Year	Number of graduate students			
	Enrolled		Granted degrees or certificates	
	Public health	Public health engineering	Public health	Public health engineering
1941–42	466	163	269	89
1942–43	323	64	159	24
1943–44	396	64	207	35
1944–45	462	78	270	38
1945–46	607	123	353	63
1946–47	724	275	536	133
1947–48	744	313	528	179
1948–49	915	283	575	152
1949–50	1,017	357	640	175
1950–51	1,022	387	729	205
1951–52	[1] 1,187	([2])	[1] 795	([2])

[1] Unpublished preliminary data.
[2] Comparable data not yet available.

Source: Data published annually in the *American Journal of Public Health.*

Some schools have a fairly large number of students who spread their program of study over more than 1 year. They may be full-time students for part of a year, or they may take no more than one or two courses during any given term. There are other part-time students who are registered primarily in some other unit of the university who take a course or two at the school of public health. Methods of counting these students also vary.

Then there are other students who may be full time at the school of public health but who are not candidates for a degree. They may concentrate all their work in one department and so not fulfill graduation requirements. Sometimes they are included in school enrollment counts and sometimes not.

For some particular programs of study, degrees may not be awarded until field training requirements have been met. Students who are away from the school during the normal academic year may or may not be counted—again depending possibly on the purpose of the count.

Students in Schools of Public Health, 1949–50

The 9 schools of public health in full operation during [9] the academic year 1949–50 had a total of approximately 1,100 students, of which 631, or more than half, were enrolled for graduate degrees; 336 were undergraduate students; and 130 were special students (table 5). This count is based on the number of students who furnished data for a recent study of schools of public health and undoubtedly excludes others such as students taking field training under the direction of a school of public health.[10]

The students enrolled in these schools came from 51 States, Territories, and possessions of the United States, and from many foreign countries. In fact out of the total of nearly 1,100 students, 146 (13 percent) came from 38 different foreign countries.

Table 5.—Number of students enrolled in each of nine schools of public health: 1949–50 [1]

School	Total	Graduate	Undergraduate	Special
Nine schools	1,097	631	336	130
California	232	73	137	22
Columbia	123	105	--	18
Harvard	86	60	--	26
Johns Hopkins	123	104	--	19
Michigan	151	78	59	14
Minnesota	216	83	129	4
North Carolina	111	77	11	23
Tulane	13	13	--	--
Yale	42	38	--	4

[1] Data from individual student-schedules received for Public Health Service *Study of Schools of Public Health, 1950.* (In preparation.)

Of the graduate students enrolled in the academic year 1949–50, 331 had already received professional degrees, and an additional 9 percent had masters' degrees. The 331 students with professional degrees were distributed as follows: 204 in medicine, 65 in nursing, 39 in engineering, 14 in dentistry, and 9 in veterinary science.

[9] Exclusive of Pittsburgh which did not admit its first class until the fall of 1950.

[10] Public Health Service, Division of Public Health Methods, *Study of Schools of Public Health, 1950.* (In preparation.)

The previous experience in health or medical care reported by the 631 graduate students was largely concentrated in work in official health agencies or in the Armed Forces. Only about one-sixth of the group reported no experience in the field of health.

More graduate students majored in public health administration than in any other subject—115. Hospital administration was a close second with 106 graduate major students. Public health education and environmental sanitation were the only other fields with more than 50 graduate majors. Other graduate students were distributed among such major specialties as tropical public health, microbiology, epidemiology, maternal and child health, public health nursing, nutrition, biostatistics, and industrial hygiene.

The 336 undergraduate students in the academic year 1949–50 were enrolled in 4 schools. Slightly more than half of the undergraduates had had some previous experience in providing health and medical services, mainly in the Armed Forces or in hospitals. Nearly two-thirds were majoring in public health nursing, the only undergraduate major offered during 1949–50 in three of the schools that had undergraduate students. The fourth school had no undergraduates in nursing but had undergraduate students majoring in public health laboratory work, in sanitation, and in several other specialties.

Current Problems

A number of important questions are receiving intensive exploration and experimentation among the several schools.

In common with universities in general and other professional schools, schools of public health have encountered difficulties in obtaining sufficient financial support to provide the facilities needed and to maintain the high standards of professional education that are considered essential. Because of the large numbers of special disciplines required in the faculty of a school of public health and because of the number of categories of students who receive training at these schools, professional education in public health is expensive. The recent study made by the Public Health Service showed an average basic operating expense per graduate student of approximately $4,000. This figure varied widely from school to school depending on differences in organization and program, number of full-time faculty, size of student body, and amount of research.

The problem of recruiting professional personnel,

particularly physicians, into public health is a major one. Careful analysis of the professional responsibilities of public health personnel will perhaps identify the public health functions that can be effectively assigned to persons without medical training. In this way it may ultimately be possible to assure the essential medical supervision of programs and services by reducing the time spent by physicians in duties that can adequately be performed by nonmedical personnel. Several schools are experimenting with the training of nonmedical public health administrators both at the undergraduate and graduate levels of instruction.

Another problem for schools of public health concerns their curriculums. What should be the basic content of instruction? What new areas of teaching and research should be developed to meet changing needs? What is the most effective balance between the theoretical and the practical to equip graduates of schools of public health both for their immediate duties and for future responsibilities?

Conclusions

This brief description of education of professional personnel in public health, while indicating many differences among schools, reveals a common characteristic which sharply differentiates this group of schools from other institutions that provide education for the health professions. Schools of public health bring together many different professions and occupations for education in principles and practice of community health. In contrast other institutions for training health personnel offer education in health diagnosis and treatment of individual patients. Students of public health take identical courses in certain of the basic public health sciences but are separated into special groups for courses that concentrate on the development and application of skills of their individual profession or specialty to the field of public health.

Professional education in public health is a young field compared to that in medicine, dentistry, and nursing. It is, therefore, not surprising to find wide variation among schools in organization, policies, and content of training. Planning programs of professional education in this field requires sound estimates of the effects on the health and implications for health service of advances in almost every field of human knowledge, including the natural and social sciences. To a large extent the effectiveness of public health in the future depends on how well schools of public health can discharge their responsibilities.

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Joint Program for Internships in General Education

THE JOINT PROGRAM for Internships in General Education, supported by a grant from the Carnegie Corporation, is being continued for 1953–54. It enables the undergraduate colleges at Chicago, Columbia, Harvard, and Yale each year to obtain the services of 12 visiting teachers.

Under the program, colleges and universities interested in general education nominate one of their own staff members to spend a year at the institution of his choice. Each host institution selects three visiting teachers who participate in the regular conference and instructional work and in such staff seminars and study groups as may be held. To leave the visitor ample time for studying the general education program as a whole, his teaching responsibilities are approximately one-third of the

full duties of a regular staff member. Late in the academic year the 12 visiting teachers join representatives of the 4 institutions and of the Carnegie Corporation in a conference to review the year's work, discuss the programs, and appraise current developments in general education. This intern program was initiated in 1951–52 and will be continued through 1954–55.

A visiting teacher's remuneration is paid by the host institution from funds provided by the Carnegie Corporation. Compensation is based upon the regular salary with appropriate allowances for transportation and increased living costs. The host institutions are agreed that the intern program has optimum value for persons in the middle academic ranks.

The second contingent of teachers is currently in residence at the four cooperating institutions, and those who are to serve during 1953–54 have already been selected. College presidents and deans who wish to nominate staff members for 1954–55 should keep these dates in mind: nominations must be submitted before the end of November 1953; notification of selections is made soon after the new year. Information about the Joint Program for Internships in General Education may be obtained from Lawrence H. Chamberlain, Hamilton Hall, Columbia University, New York 27, N. Y.

American Marketing Speaks

THE DEPARTMENT OF COMMERCE AND ECONOMICS of the University of Vermont is currently sponsoring an unusual series of presentations entitled "American Marketing Speaks." The presentations, which are made by prominent businessmen, are a part of a course designed for the regular academic program.

The course was conceived with a dual purpose. One purpose is to provide both students and the public with a better understanding of the vital social and economic functions of this primary operation in the American economy. The other purpose is to provide the setting for an exchange of ideas to bring the theory of the classroom and the practice of the business world together.

Enrolled in "American Marketing Speaks" are approximately 30 businessmen from Vermont and the surrounding area in addition to the regular matriculated student members. The lectures by the various speakers are open to these two groups and to any students at the university plus those in colleges located in the area and the faculty members of the various institutions.

The course began with 2 weeks of intensive preparation of the student group by a member of the department. Following this an outstanding businessman is being brought to the campus once a week on Tuesday afternoons for 14 weeks. This is the meeting open to the businessmen enrolled and the students of the various institutions. The Thursday meeting is used by the students enrolled for credit in an analysis of the speaker's remarks and for integrated case studies to sharpen the process of making value judgments.

Summer Schools at British Universities, 1953

UNIVERSITY SUMMER SCHOOLS will be held in 1953 in several British universities for students from the United States, Britain, and other countries. The courses are intended for graduate students, teachers, and qualified undergraduates. The schools will be held by the following universities:

University of Birmingham, to be held at Stratford Upon Avon under the joint auspices of the university's Shakespeare Institute and the Department of Extra-Mural Studies, July 4 to August 15. The subject is Shakespeare and Elizabethan Drama. The fee for board, residence, tuition, and excursions is $196.

University of London, to be held at the London School of Economics and Political Science, July 13 to August 21. The subject is Britain's Economy in the Atlantic Community. The fee for board, residence, tuition, and excursions is $176.40.

University of Oxford, July 3 to August 14. The subject is Literature and Politics in the Twentieth Century. The fee for board, residence, and tuition is $201.60.

Scottish Universities, to be held at the University of Edinburgh, June 29 to August 8. The subject is The Development of Modern Western Civilization. The fee for board, residence, tuition, and excursions is $184.80.

The courses may be credit-earning, but the student must arrange this with his own university authorities, and he may then claim the credits with a certificate issued by the British university. The courses will

comprise a minimum of 10 hours' class work a week, in addition to time spent on individual work.

Passages will be reserved for applicants who secure admission to one of the courses.

A limited number of grants will be made to cover part of the fees. Only well-qualified students who genuinely need such aid and who would not otherwise be able to attend a summer school in Great Britain should fill out the award application blank, which may be obtained on special request.

Illustrated booklets giving full details about the courses, and application blanks may be obtained on request from the Institute of International Education, 1 East Sixty-seventh Street, New York, N. Y., or from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. Completed applications must be received by the Institute of International Education not later than April 10, 1953.

New AEC Fellowship Program

The Atomic Energy Commission has approved the establishment of 60 new fellowships to enable graduates in engineering and physical sciences from accredited universities, colleges, and engineering schools to complete a fifth year of unclassified study and research in reactor engineering. Engineering graduates will be encouraged to major in science, and physical science graduates will be encouraged to major in engineering. The fellowships will be for 1 year beginning September 1, 1953.

Each fellowship will carry a stipend of $1,600, with $350 extra for a wife, and $350 additional for each child, plus travel allowances for the fellow of 6 cents a mile one way. The institution at which the fellow studies will be allowed the standard tuition and fees for out-of-State students.

Fellows will be under no obligation to accept positions with the AEC laboratories or its contractors. The Commission hopes that this program will enable the Oak Ridge School of Reactor Technology to omit much of the refresher work and basic undergraduate instruction which up to now it has been found essential to cover.

Applications for fellowships must be received by the Oak Ridge Institute for Nuclear Studies, Oak Ridge, Tenn., by February 15, 1953.

Complete details concerning this program of fellowships will be sent by ORINS to all colleges and universities in the immediate future.

NEW PUBLICATIONS

Annual Report of the President, Illinois Institute of Technology, 1951–1952. Chicago, Ill., The Institute, 1952. 37 p.

Center of Opportunity: Continuing Education, Michigan State College. East Lansing, Mich., The College, 1952. 32 p.

Describes the activities of the Kellogg Center for Continuing Education at Michigan State College.

College and the Years After: A Career Study of Municipal College Graduates, by Leonard J. West. New York, Board of Higher Education, The College of the City of New York, 1952. 123 p. Paper, $1; Cloth $1.60.

Depicts the careers of two groups of New York City municipal college graduates (3,201)—one group 3 years after their graduation in 1947 and the other 9 years after their graduation in 1941. An extensive source of reactions of college graduates to their college education.

College and University Business Administration, by The National Committee on the Preparation of a Manual on College and University Business Administration. Washington, American Council on Education, 1952. 217 p. $4.50.

A revision and expansion of *Financial Reports for Colleges and Universities*, published in 1935, and long out of print. Deals with principles of college and university business administration and accounting, budgets and budgetary accounting, reports, the balance sheet, statements, auditing, and allocation of indirect expenditures. Includes appendixes on terminology, depreciation of real property in educational institutions and an opinion on investment of endowment funds in dormitories. Contains also an extensive bibliography.

The College Entrance Examination Board: 51st Annual Report of the Director, 1951. New York, The Board, [n. d.] 80 p. Paper, 50 cents.

Community College Education Today, by Robert S. Gilchrist, William R. Wood, Hugh S. Bonar, and Ralph R. Fields. Papers presented at the 36th Annual Convention of the National Association of Secondary-School Principals, 1952. 25 p. Reprinted from *The Bulletin*, March 1952. Limited supply, free from the Office of Education.

Four addresses on the junior and community college.

Employer Personnel Practices in Colleges and Universities, 1951–1952. 809 South Wright St., Champaign, Ill., College and University Personnel Association, 1952. Proc. 69 p. Paper, $2.50.

Report of a survey sponsored by the College and University Personnel Association. A statistical report using data from 81 colleges and universities representing all sections of the Nation. Wage and salary administration, recruitment, testing, placement, training, promotions, benefits and conditions of employment, and salary and wage rates are the main items covered.

Freedom and Loyalty in American Democracy. Addresses and Proceedings, Western College Association, Spring Meeting, April 5, 1952. Pomona College, Claremont, Calif., The Association, Charles T. Fitts, Secy.-Treas., 1952. 51 p. Paper.

Two addresses, reports of four round-table conferences, and minutes of two meetings.

The Nursing Student Evaluates Her Teachers, by Loretta E. Heidgerken. Philadelphia, Pa., J. B. Lippincott Co., 1952. 124 p. $3.

An analysis of the teacher and teaching activities in the school of nursing as viewed by the senior nursing student; represents cooperative efforts of 37 schools of nursing. The chapters are on such topics as student evaluation of teaching, personal qualities of the teacher, teaching in the school of nursing.

President's Annual Report, Guilford College, 1951–1952. Guilford College Bulletin, Vol. 45, No. 8, 1952. 15 p.

Report of the Chancelor, New York University, 1951–1952. New York University Bulletin, Vol. 52, No. 41, 1952. 40 p.

Residential Colleges: Some New Developments in British Adult Education, by Guy Hunter. New York, The Fund for Adult Education, n. d. 77 p. Free from the Fund.

Describes the background and origin of the residential colleges for adult education—now numbering 23, in England—the development of policy, the programs, the quality and standards of work, and the perspective with which they operate. The two basic problems of the education provided by these colleges are stated as: (1) the nature of a humane education since the rise of science and (2) the transmission of a literate elite culture in a democracy.

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The Rockefeller Foundation: A Review for 1950 and 1951, by Chester I. Barnard. New York, The Foundation, 1952. 125 p.

Women in the Defense Decade, Raymond F. Howes (Ed.) Washington, D. C., American Council on Education, 1952. 110 p. Paper, $1.25.

Report of a national conference of persons representing schools, colleges, universities, government agencies, and selected national organizations, New York City, Sept. 27–28, 1951. Eight addresses and reports of conference findings.

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